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TITLE: Controllable lighting effects using polymer optical fibres - with rainbow coloured side emissions ensured by using special sheathing and cladding materials

PATENT-ASSIGNEE: ANONYMOUS[ANON]

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PATENT-FAMILY:

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ABSTRACTED-PUB-NO: RD 388052A

BASIC-ABSTRACT:

End-emitting and **side-emitting solid-core polymer optical fibers** (POF's) have found use for illumination. Side-emitting fibers can be made to produce novel, controllable effects by using cladding materials with special properties. In this context, the cladding refers to the material immediately surrounding the core of the POF. In some cases, sheathing material may surround the cladding. Examples of special effects include: 1. Emission of light from a strip or slit along the axis of the POF. This effect can be produced by preparing a cladding that is internally reflective, except along an axial strip. Such a

cladding
can be prepared, for example, using a striping die on an extrusion line, or by
applying a masking material, such as a reflective coating, to the cladding. 2.
Alternating bands of light and darkness along the axis of the POF. This effect
could be produced by preparing a cladding that is alternately reflective and
non-reflective. Such a cladding can be prepared, for example, by periodically
applying a reflective coating at the outlet of an extrusion die. 3. Providing
uniform light intensity along a length of POF. Normally, a side-emitting POF
emits more light near the light source than it does far away from the light
source. This tendency can be overcome by providing a cladding whose internal
reflectance is graduated, with higher internal reflectance near the light
source and lower internal reflectance far away from the light source. Such a
cladding can be prepared, for example, by varying the thickness of the
cladding, with a thicker cladding near the light source and a thinner cladding
further from the light source. 4. Restricting the viewing angle over which
light can be seen from the side-emitting POF. In some cases, it may be
preferable to provide indirect lighting. In these cases, a side-emitting POF
can be prepared with a cladding that restricts the viewing angle over which
light can be seen directly. Indirect lighting can be provided by positioning,
for example, a painting within the angle of direct lighting, but restricting
the observer's position outside the directly lit area. 5. Rainbow-coloured
side emissions.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: CONTROL LIGHT EFFECT POLYMER OPTICAL FIBRE RAINBOW COLOUR SIDE
EMIT ENSURE SPECIAL SHEATH CLAD MATERIAL

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